

Seminář odd. 26

Tenkých vrstev a nanostruktur

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TÉMA

Visualizing and manipulating graphene physics at the atomic scale

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In 2004 graphene ceased being a theoretical chimera to become the object of desire of the scientific community. In just few years, extraordinary properties have being demonstrated and many others are emerging as a result of the tremendous experimental and theoretical efforts devoted to this material. In this talk I will show how we use a scanning tunneling microscope to explore and manipulate graphene physics at an atomic level. I will mainly concentrate in two topics:

The investigation, at the atomic scale, of the impact that point defects like vacancies or atomic H have in the structural, electronic and magnetic properties of graphene layers grown on different substrates, where the pure bidimensionality of graphene gives to these atomic defects a critical role [1-3].

The study of the coupling of graphene with its local environment and how this affects to graphene's quasiparticle dispersion, pseudospin, van Hove singularities..., which is absolutely critical to be able to integrate it in tomorrow's electronic devices [4-8].

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[4] I. Brihuega, et al. Phys. Rev. Lett. 101, 206802 (2008)

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[6] A.J. Martínez-Galera, I. Brihuega and J. M. Gómez-Rodríguez, Nano Letters 11, 3576 (2011)

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